

In the Claims

Claims remaining in the application are as follows:

1. (Currently Amended): A tape mirror interface comprising:
an input terminal coupled to at least one input node and capable of receiving data transfer requests;
a plurality of output terminals coupled to a plurality of tape storage devices; and
a control element coupled to the input terminal and plurality of output terminals, the control element presenting at least two associated mirror devices of the plurality of tape storage devices as separate media devices and selectively controlling data transfer in the at least two associated mirror devices in a synchronous mode so that writes to a target tape storage media are mirrored to a mirrored tape storage media; and in a split mode so that writes are written to the tape storage devices independently without mirroring.
2. (Currently Amended): The tape mirror interface according to claim 1 wherein: the control element responds to a SYNC command directed to the at least two associated mirror devices by synchronously writing data to a primary tape storage device and to a secondary tape storage device with data discrepancies between the primary tape storage device and the secondary tape storage device being preserved.
3. (Currently Amended): The tape mirror interface according to claim 1 wherein: the control element responds to a SPLIT command directed to the at least two associated mirror devices by enabling writing to a primary tape storage device and to a secondary tape storage device separately without mirroring.
4. (Original): The tape mirror interface according to claim 1 wherein: the control element is implemented in a software Application Programming Interface (API) executable on an external host computer.

5. (Original): The tape mirror interface according to claim 1 wherein:
the control element is implemented in a hardware Small Computer Systems Interface
(SCSI) Logical Unit (LUN) enabling mirror configuration commands to be
transferred as SCSI commands.

6. (Original): The tape mirror interface according to claim 1 wherein:
the control element is implemented in a hardware out-of-band management interface.

7. (Original): The tape mirror interface according to claim 1 wherein:
the control element is implemented in a hardware Local Area Network (LAN) based
control interface using a Transmission Control Protocol/Internet Protocol
(TCP/IP) management protocol.

8-11. (Canceled)

12. (Currently Amended): A command interface controller for usage in a tape
storage array comprising:
a command interpreter capable of identifying at least one interface command; and
a control element responsive to the identified at least one interface command and
selectively controlling data transfer in a synchronous mode so that writes to a
target tape storage media are mirrored to a mirrored tape storage media; and
in a split mode so that writes are written to ~~individual~~ the target tape storage
media and the mirrored tape storage media independently without mirroring.

13. (Original): The command interface according to claim 12 wherein:
the control element presents a plurality of tape storage devices and corresponding
media in the tape storage array to an external device that issues commands as
separate and individual tape storage devices and media.

14. (Original): The command interface according to claim 12 wherein:
the command interpreter identifies a MODE command; and
the control element responds to the MODE command by designating whether
the command interface controller supports tape mirror functionality
and whether tape mirror functionality is enabled or disabled.

15. (Original): The command interface according to claim 12 wherein:
the command interpreter identifies a SYNC command; and
the control element responds to the SYNC command by enabling mirror functionality
and synchronously writing data to a primary tape storage device and to a
secondary tape storage device with data discrepancies between the primary
tape storage device and the secondary tape storage device being preserved.

16. (Original): The command interface according to claim 12 wherein:
the command interpreter identifies a SYNC command; and
the control element responds to the SYNC command by determining whether less
than two tape storage devices are coupled to the command interface and, if so,
returning an error message.

17. (Currently Amended): The command interface according to claim 12 wherein:
the command interpreter identifies a SPLIT command; and
the control element responds to the SPLIT command by disabling mirror
functionality and writing to a primary tape storage device and to a secondary
tape storage device separately without mirroring.

18-39. (Canceled)

40. (Currently Amended): An article of manufacture comprising:
a controller usable medium having a computable readable program code embodied
therein for executing in a command interface controller for usage in a tape
storage array, the computable readable program code further comprising:
a computable readable program code capable of causing the controller to identify at
least one interface command; and
a computable readable program code capable of causing the controller to respond to
the identified at least one interface command and selectively control data
transfer in a synchronous mode so that writes to a target tape storage media
are mirrored to a mirrored tape storage media; and in a split mode so that
writes are written to ~~elements of the target tape storage array media and the~~
mirrored tape storage media independently without mirroring.

41. (Original): The article of manufacture according to claim 40 wherein the computable readable program code further comprises:

- a computable readable program code capable of causing the controller to identify a MODE command; and
- a computable readable program code capable of causing the controller to respond to the MODE command by designating whether the command interface supports tape mirror functionality and whether tape mirror functionality is enabled or disabled.

42. (Original): The article of manufacture according to claim 40 wherein the computable readable program code further comprises:

- a computable readable program code capable of causing the controller to identify a SYNC command; and
- a computable readable program code capable of causing the controller to respond to the SYNC command by enabling mirror functionality and synchronously writing data to a primary tape storage device and to a secondary tape storage device with data discrepancies between the primary tape storage device and the secondary tape storage device being preserved.

43. (Original): The article of manufacture according to claim 40 wherein the computable readable program code further comprises:

- a computable readable program code capable of causing the controller to identify a SYNC command; and
- a computable readable program code capable of causing the controller to respond to the SYNC command by determining whether less than two tape storage devices are coupled to the command interface and, if so, returning an error message.

44. (Original): The article of manufacture according to claim 40 wherein the computable readable program code further comprises:

- a computable readable program code capable of causing the controller to identify a SPLIT command; and
- a computable readable program code capable of causing the controller to respond to the SPLIT command by disabling mirror functionality and writing to a

primary tape storage device and to a secondary tape storage device separately without mirroring.

45. (Currently Amended): A data protection system capable of storing data on a plurality of tape drives comprising:

an interface capable of transferring data from at least one data source to the plurality of tape drives;

a data mover coupled to the interface and capable of moving data from source to destination, bypassing intermediate system elements; and

a tape mirror coupled to the interface and coupled to the data mover, the tape mirror presenting at least two associated mirror tape drives of the plurality of tape drives as separate media devices, receiving data from the data mover, and selectively transferring the data in a synchronous mode so that writes to a target tape media of the at least two associated mirror tape drives are mirrored to a mirrored tape media of the at least two associated mirror tape drives, and in a split mode so that writes are written to the at least two associated mirror tape drives independently without mirroring.

46. (Original): The data protection system according to claim 45 further comprising: a buffer coupled to the data mover and coupled to the tape mirror, the buffer capable of receiving data from the data mover and the mirror and splitting the data into multiple write streams for transfer to a plurality of tape drives.

47. (Original): The data protection system according to claim 45 wherein: the interface is a Fibre-Channel to SCSI bridge; and the data mover is an XCOPY SCSI command.

48. (Original): The data protection system according to claim 45 wherein: the interface is a bridge selected from among a group of bridges comprising: a bridge between external Fibre Channel (FC) hosts and internal Small Computer Systems Interface (SCSI) devices; a bridge between external FC devices and internal FC devices;

a bridge between external internet SCSI (iSCSI) devices and internal SCSI devices;
a bridge between external internet SCSI (iSCSI) devices and internal FC devices; and
a bridge between external iSCSI devices and internal iSCSI devices.

49. (Original): The data protection system according to claim 45 further comprising:
a buffer coupled to the interface, the data mover, and the tape mirror; and a control
process capable of executing, in at least one control element buffer, a plurality
of actions comprising:

controlling the interface to read data from a data source into the buffer using data
mover functionality;

controlling the data mover to detect whether the tape mirror is enabled;

controlling the tape mirror, if enabled, to generate duplicate writes to at least two tape
drives attached to the interface from the buffer.

50. (Currently Amended): A data protection system for usage in a tape storage
array comprising:

means for identifying at least one interface command; and

means responsive to the identified at least one interface command for selectively
controlling data transfer in at least two associated mirror tape storage media
in a synchronous mode so that writes to a target tape storage media of the at
least two associated mirror tap storage media are mirrored to a mirrored tape
storage media of the at least two associated mirror tap storage media; and in a
split mode so that writes are written to the target tape storage media and the
mirrored tape storage media independently without mirroring.